

A NEW SPECIES OF THE GENUS *TOMOCERUS* (COLLEMBOLA, TOMOCERIDAE) FROM CHINA

LIU Yong-Qin¹, ZHOU Jian-Hua², ZHANG Qing-Dong³

1. College of Life and Engineering, Southwest University of Science and Technology, Mianyang 621010, China; E-mail: liuyongqin@swust.edu.cn

2. Institute of Forest Resources Conservation, Sichuan Academy of Forestry, Chengdu 610066, China

3. School of Environment and Resource, Southwest University of Science and Technology, Mianyang 621010, China

Abstract *Tomocerus jiuzhaiensis*, a new species of the genus *Tomocerus* (Collembola, Tomoceridae) from Sichuan Province, China is described. All the type specimens of the new species are deposited in the Insect Collection College of Life and Engineering, Southwest University of Science and Technology.

Key words Collembola, Tomoceridae, *Tomocerus*, new species, China.

The genus *Tomocerus* is the most abundant in the family Tomoceridae of Collembola. All species of *Tomocerus* show the following characters: antennae 4 segments, antennal segments III and IV annulated; tibiotarsus with spiny setae; dens without large setae on outer edge and without basal scaly appendix on the inner edge; mucro with two dorsal lamellae, the outer one of the pair of basal mucronal teeth with a small toothlet.

Up to now, 75 species of the genus *Tomocerus* have been described in the world. Among them, 43 species were described or reported from China (Zhao *et al.*, 1997; Chen and Christiansen, 1998; Ma and Christiansen, 1998; Liu *et al.*, 1999; Liu, 2003; Ma *et al.*, 2003; Chen *et al.*, 2004; Liu, 2006; Sun *et al.*, 2006 a, b, c, d; Sun *et al.*, 2007 a, b, c; Sun *et al.*, 2008; Sun *et al.*, 2010; Ma, 2011). While examining specimens of Collembola collected from Jiuzhaigou, Sichuan, China, we found a new species of the genus *Tomocerus*: *T. jiuzhaiensis* sp. nov. The specimens studied in this work were mounted on slides, deposited in the Insect Collection College of Life and Engineering, Southwest University of Science and Technology, Mianyang, Sichuan, China.

The terminology and morphological interpretations used in this paper follow Yosii (1967).

***Tomocerus jiuzhaiensis* sp. nov.** (Figs 1–11, Table 1)

Body length up to 3.0 mm (Fig. 1).

Color. Ground colour whitish gray with irregular brownish pattern over the tergites, posterior margin of head capsule brownish. Eye patches intensely black. Ant. III and IV annulated, pale purple. Tibiotarsus

often diffusely violet.

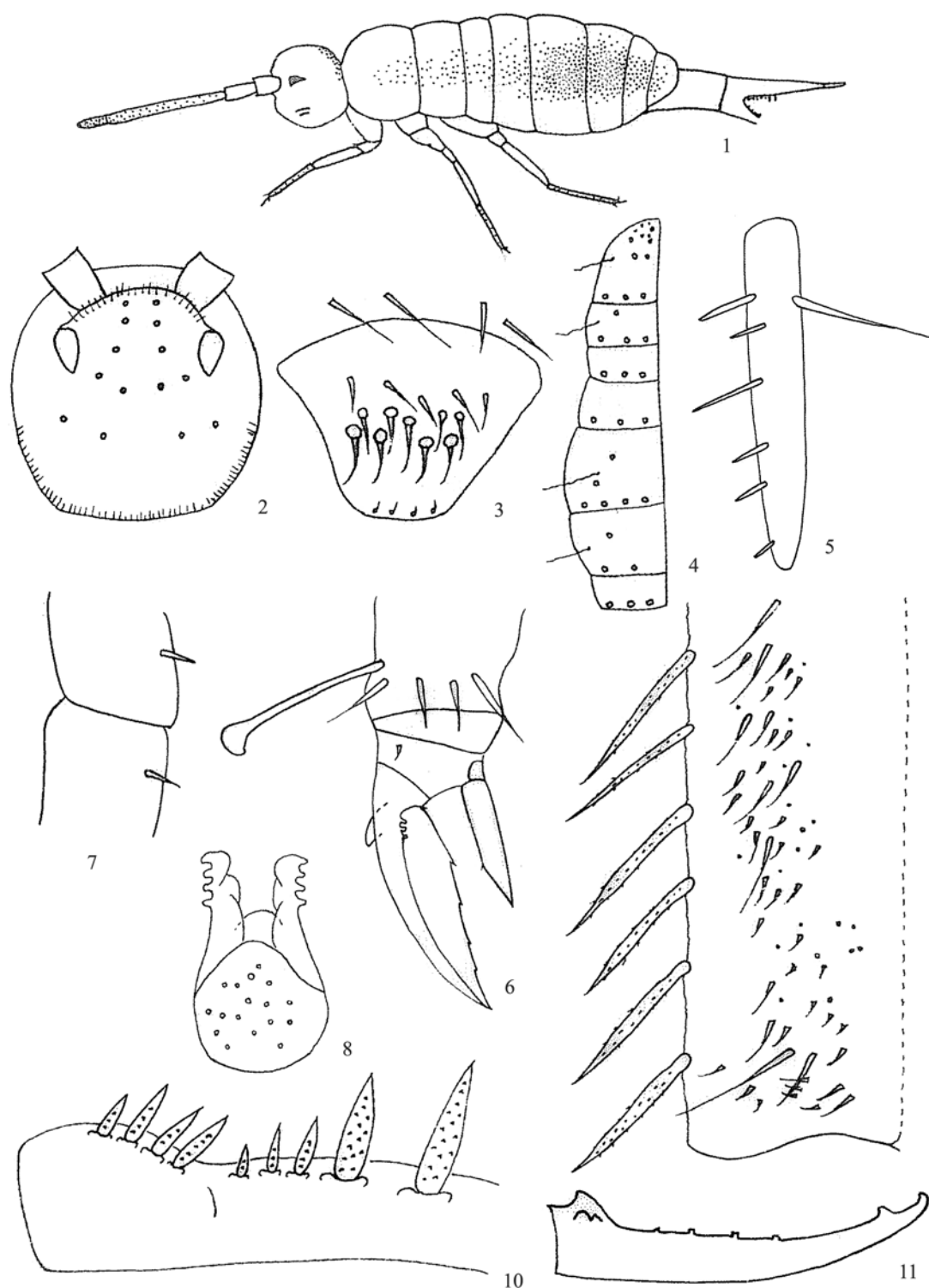
Head. Eyes 6 + 6, almost subequal. Antennae up to 1.6 mm long; 0.5 times as long as body and 2.9 times as long as cephalic diagonal; ratios of Ant. I : II : III : IV = 1.0 : 1.2 : 5.8 – 6.2 : 1.2. Head capsule with 2, 2 anterior setae and about 60 small setae in a transverse row at posterior margin (Fig. 2). Labral setae 4/5, 5, 4, all smooth, margin with 4 recurving spinules (Fig. 3).

Thorax. Thorax with dorsal chaetotaxy and bothriotricha as in Fig. 4. Tibiotarsus with numerous pointed smooth setae in different sizes, ventral side with 6, 6, 6 large blunt spiny setae respectively on legs I – III (Fig. 5). Unguis broad; a pair of pseudonychia well developed, 0.42 – 0.52 times as long as inner edge of unguis; unguis with a distinct basal and 3 obscure distal inner teeth respectively on legs I – III. Unguiculus lanceolate with 1 inner tooth. Tenent hair thick and spatulate, about 0.80 – 0.85 times as long as edge of unguis (Fig. 6). Trochanteral organ reduced to 1, 1 smooth seta (Fig. 7).

Abdomen. Tenaculum quadridentate, corpus with ca. 17 smooth setae and unscaled (Fig. 8). Ventral tube scaled, anterior, posterior and lateral sides with numerous large and small setae. Ratios of manubrium: dens: mucro = 2.5 – 2.9 : 3.9 – 4.2 : 1.0. Manubrium with a longitudinal band of lateral setae on each side and 2 longitudinal bands of setae on dorsal side; lateral setae large, all mildly ciliated, gradually tapering but more strongly tapering and pointed distally; each dorsal band of setae consists of numerous setae in different sizes, all setae very weakly ciliate to striate and pointed distally; no blunt principal

This research was supported by the Important Program from Sichuan Provincial Education Department (09ZA172), all awarded to ZHANG Qing-Dong.

Received 21 Sep. 2012, accepted 1 Apr. 2013.



Figs 1–11. *Tomocerus jiuzhaiensis* sp. nov. 1. Habitus. 2. Dorsum of head. 3. Labrum. 4. Dorsal chaetotaxy of body (Th. II – Abd. V). 5. Hind tibiotarsus. 6. Hind claw. 7. Trochanteral organ. 8. Tenaculum. 9. Distal part of manubrium, dorsal view. 10. Dental spines. 11. Mucro.

setae present (Fig. 9); dorsally scaled between setaceous stripes. Dental spines constantly as 4/3, II, distal one the largest, all of them simple, rugose, and brown in colour (Fig. 10). Mucro elongate, covered with numerous ciliate setae; outer dorsal lamellae with 3–4 intermittent teeth, outer basal tooth with a corner

toothlet, apical and anteapical teeth subequal (Fig. 11). Scales of the body are brownish, hyaline and striated. Each body macrochaeta and bothriotracha not surrounded by setulae.

Holotype ♀, China, Sichuan, Jiuzhaigou (33.2°N, 103.9°E; alt. 3 200 m), 15 Oct. 1996,

collected by HOU Da-Bin. Paratypes: 2 ♀♀, all on slides, same data as holotype. The specimens were deposited in the Insect Collection College of Life and Engineering, Southwest University of Science and Technology, Mianyang, Sichuan, China.

Table 1. Comparison between *T. jüzhaiensis* sp. nov., *T. zayuensis* and *T. ocreatus*.

Characters	<i>T. jüzhaiensis</i> sp. nov.	<i>T. zayuensis</i>	<i>T. ocreatus</i>
Dental spines	simple	simple	compound
Blunt tibiotarsus spiny setae	6, 6, 6	4, 5, 4	5, 5, 6
Unguiculus inner tooth	+	–	+ –
Tenaculum setae	17	5	15
Mucronal intermediate teeth	3–4	5	4–6

Acknowledgements We would like to thank Dr. YU Dao-Yuan from Nanjing University for providing us with literature. Thanks are also given to Prof. HE Xing-Sheng of Southwest University of Science and Technology for providing us with better equipment of examining the specimens.

REFERENCES

- Chen, J-X and Christiansen, K. A. 1998. *Tomocerus* (*s. s.*) *spinulus* (Collembola: Entomobryidae), a new species of Chinese springtail. *Entomological News*, 109 (1): 51–55.
- Chen, J-X and Ma, Y-T 1997. A new species of the genus *Tomocerus* (*s. s.*) (Collembola: Tomoceridae) from China. *Entomotaxonomia*, 19 (3): 157–160.
- Chen, J-X, Ma, Y-T and Christiansen, K. A. 2004. Re-examination of three species of *Tomocerus* s. 1 (Collembola: Tomoceridae) from China. *Journal of Entomological Science*, 39 (3): 303–310.
- Lee, B. H. 1975. Étude de la Faune coréenne des Insectes Collembolés, VI. Sur la Fimille des Tomoceridae, édaphiques, avec la description de quatre nouvelles espèces et d'une nouvelle sous-espèce. *Bull. Mus. Natn. Histoire Natur. Paris*, 317: 945–961.
- Liu, Y-Q 2003. A new species of the genus *Tomocerus* (*s. str.*) (Collembola: Tomoceridae) from China. *Journal of Southwest Agricultural University*, 25 (3): 214–216.
- Liu, Y-Q 2006. A new species of the genus *Tomocerus* (*s. str.*) (Collembola: Tomoceridae) from China. *Journal of Southwest Agricultural University (Natural Science)*, 28 (2): 300–301.
- Liu, Y-Q, Hou, D-B and Li, Z-C 1999. Four new species of *Tomocerus* (Collembola: Tomoceridae) from China. *Entomotaxonomia*, 21 (4): 239–245.
- Ma, Y-T 2011. A new species of *Tomocerus* (Collembola: Tomoceridae) from China. *Zootaxa*, 2756: 61–64.
- Ma, Y-T, Chen, J-X and Christiansen, K. A. 2003. A new record of *Tomocerus baicalensis* from China with its redescription (Collembola: Tomoceridae). *Entomological News*, 114 (1): 47–50.
- Ma, Y-T and Christiansen, K. A. 1998. A new species of *Tomocerus* (*s. s.*) (Collembola: Tomoceridae) from China. *Entomological News*, 109 (1): 47–50.
- Sun, Y, and Liang, A-P 2008. Two new species of *Tomocerus* Nicolet (Collembola: Tomoceridae) from China. *Oriental Insects*, 42: 299–304.
- Sun, Y and Liang, A-P 2010. A new record species of the genus *Tomocerus* (Collembola, Tomoceridae) from China. *Acta Zootaxonomica Sinica*, 35 (4): 716–718. [动物分类学报]
- Sun, Y, Liang, A-P and Huang, F-S 2006a. The subgenus *Tomocerus* (*s. str.*) Nicolet, 1842 (Collembola: Tomoceridae) from Gashu, China. *Oriental Insects*, 40: 327–338.
- Sun, Y, Liang, A-P and Huang, F-S 2006b. Two new species of *Tomocerus* (*sensu stricto*) Nicolet, 1842 (Collembola: Tomoceridae) from Tibet, China. *Entomological News*, 117 (5): 511–520.
- Sun, Y, Liang, A-P and Huang, F-S 2006c. Descriptions of two new Tibetan species of *Tomocerus* (*s. str.*) Nicolet, 1842 (Collembola, Tomoceridae). *Acta Zootaxonomica Sinica*, 31 (3): 559–563. [动物分类学报]
- Sun, Y, Liang, A-P and Huang, F-S 2006d. Descriptions of two new species of the genus *Tomocerus* (Collembola, Tomoceridae) from Shanxi, China. *Acta Zootaxonomica Sinica*, 31 (4): 803–806. [动物分类学报]
- Sun, Y, Liang, A-P and Huang, F-S 2007a. The genus *Tomocerus* Nicolet (Collembola, Tomoceridae) from Hunan, China with descriptions of two new species. *Acta Zootaxonomica Sinica*, 32 (1): 52–55. [动物分类学报]
- Sun, Y, Liang, A-P and Huang, F-S 2007b. A new species and a new record of the genus *Tomocerus* Nicolet (Collembola, Tomoceridae) from China. *Acta Zootaxonomica Sinica*, 32 (2): 290–292. [动物分类学报]
- Sun, Y, Liang, A-P and Huang, F-S 2007c. The genus *Tomocerus* Nicolet (Collembola: Tomoceridae) from Sichuan, China with descriptions of two new species. *Proceedings of Entomological Society of Washington*, 109 (3): 572–578.
- Yosii, R. 1967. Studies on the Collembolan family Tomoceridae, with special reference to Japanese forms. *Contributions from the Biological Laboratory Kyoto University*, 20: 1–54.

Zhao, L-J, Tamura, H. and Ke, X 1997. Tentative checklist of Collembolan species from China (Insecta). *Publication of*

Itako Hydrobiological Station Ibaraki University, 9: 15 – 40.

中国鳞蛸属一新种（弹尾纲，鳞蛸科）

刘永琴¹ 周建华² 张清东³

1. 西南科技大学生命科学与工程学院 绵阳 621010, E-mail: liuyongqin@swust.edu.cn

2. 四川省林业科学研究院森林资源保护研究所 成都 610066

3. 西南科技大学环境与资源学院 绵阳 621010

摘 要 记述了采自中国四川鳞蛸属（弹尾纲，鳞蛸科）1新种，模式标本保存在西南科技大学生命科学与工程学院昆虫标本室。

九寨鳞蛸，新种 *Tomocerus jiuzhaiensis* sp. nov. (图 1~11)

该种与 *T. zayuensis* Huang and Yin, 1981 和 *T. ocreatus*

Denis, 1948 相似，主要区别是齿节刺结构、胫跗节刺状钝毛数、小爪内齿的有无、握弹器体上刚毛数等。新种主要鉴别特征：齿节刺简单，胫跗节刺状钝毛数为 6、6、6，小爪有 1 内齿、握弹器体上刚毛数为 17 支，弹器端节间齿数为 3~4。

词源：新种种名源自模式标本采集地地名。

关键词 弹尾纲，鳞蛸科，鳞蛸属，新种，中国。

中图分类号 Q969.14